



Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Install Electric Compressors

Compressors/Engines ☒
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Applicable sector(s):

☒ Production ☒ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Marathon Oil Company, Enron Corporation

Other related PROs: Convert Gas Driven Chemical Pumps, Install Electric Starters

Technology/Practice Overview

Description

Gas-fired engines are often used to run compressors, generators and pumps. In some operations, part of the produced gas stream is used to power these engines. Methane emissions result from leaks in the gas supply line to the engine, incomplete combustion, or during system upsets.

Partners reported that installing electric motors in place of gas-fired units can decrease gas losses. Electric motors reduce the chance of methane leakage by eliminating the need for fuel gas, require less maintenance, and improve operational efficiency.

Principal Benefits

Reducing methane emissions was:

☐ A primary justification for the project ☒ An associated benefit of the project

Operating Requirements

An electrical power supply is needed to implement this technology.

Applicability

Remote facilities with an available electrical power source and high compressor maintenance cost may be good candidates for this technology.

Methane Savings

6,440 Mcf/yr

Costs

Capital Costs (including installation)

☐ < \$1,000 ☐ \$1,000-\$10,000 ☒ > \$10,000

Operating and Maintenance Costs (Annual)

☐ < \$100 ☐ \$100-\$1,000 ☒ > \$1,000

Payback (Years)

☐ 0-1 ☐ 1-3 ☐ 3-10 ☒ > 10

Methane Emission Reductions

Methane emission savings are based on an emission factor of 2.11 Mcf/yr/hp. Partners have reported methane savings of up to 32,155 Mcf/yr by installing a 17,000 hp electric motor.

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 6,440 Mcf/yr apply to the replacement of one 3000 hp reciprocating engine.

Discussion

Installing an electric motor in place of a gas driven engine will increase operational efficiency, reduce maintenance costs, and yield significant methane savings. The capital costs and the electricity costs, however, are higher for an electric motor compared to those for a gas driven engine. The savings from maintenance costs relative to the cost of energy will not be justified unless the engine is at the end of its economic life.